EOS Science Networks Performance Report

May 2002

This is a summary of EOS QA SCF performance testing for May 2002 -- comparing the performance against the requirements from BAH, including Terra, TRMM, and QuikScat, Aqua, ADEOS II, partial Aura and SAGE III, and ICESat requirements. Still waiting for the rest of Aura. The requirements were increased in May 2001 by adding a 50% contingency factor to all QA and SIPS requirements, which were omitted with the change to the new BAH requirements in March 2001. In June 2001 the requirements were modified to incorporate an updated number of EOS funded users at each tested site, based on the latest SPSO database. The total number of users increased in this way from 434 to 1012 (US only).

Up to date graphical results can be found on the EOS network performance web site (now pretty stable): http://corn.eos.nasa.gov/performance/Net_Health/EOS_list.html.

Highlights:

- Re-established testing from EDC to most SCFs through firewall.

- Confirmed that LaTIS performance is limited by the new campus firewall – it does not honor requests for extended windows. However, have started using multiple parallel TCP streams to mitigate this condition.

- Otherwise mostly stable performance.

Ratings:

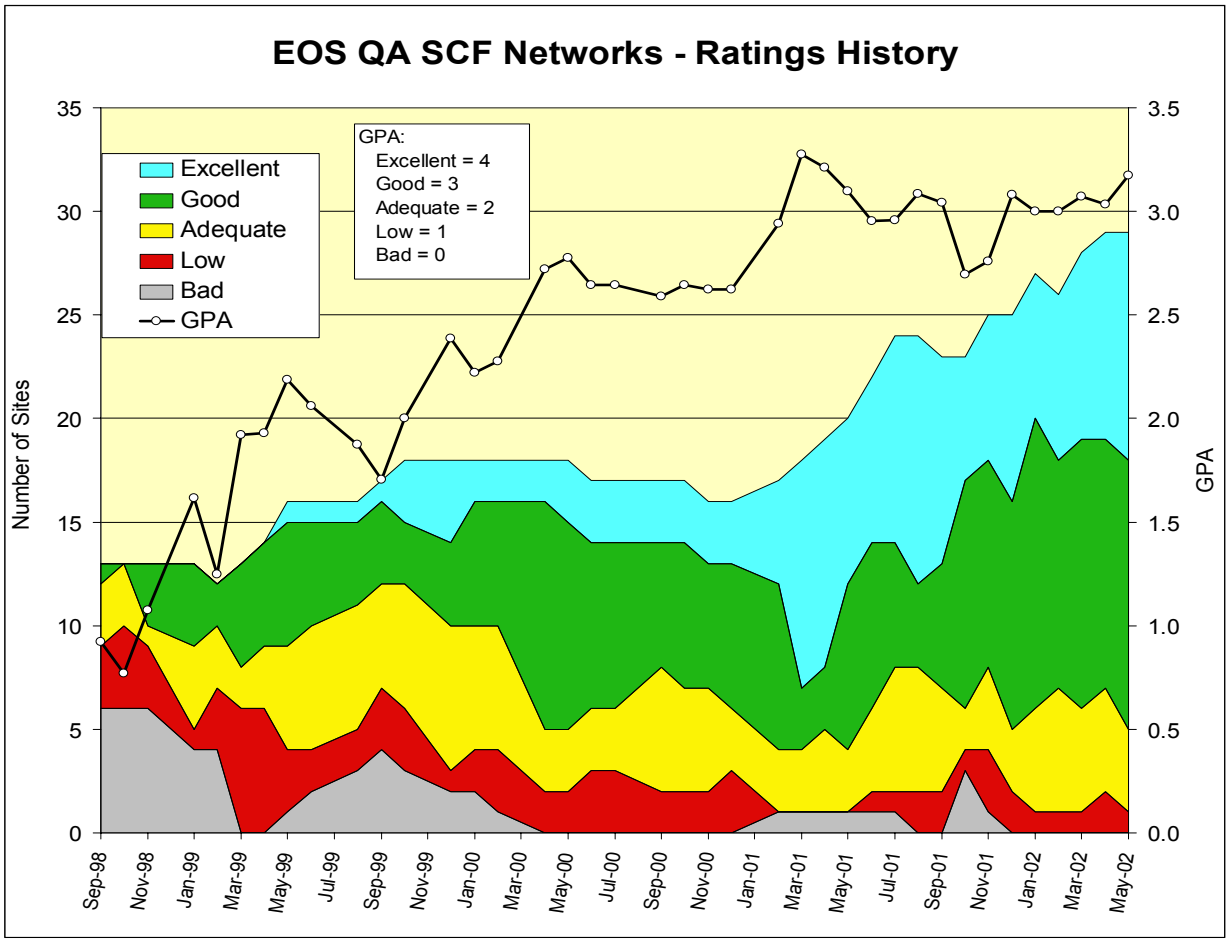
Rating Categories:

Excellent: median of daily worst cases > 3 x requirement
Good: median of daily worst cases > requirement

Adequate: median of daily worst cases < requirement
and
median of daily medians > requirement

Low: median of daily medians < requirement.
Bad: median of daily medians < 1/3 of the requirement.

The chart below shows the number of sites in each classification since the testing started in 1998. Note that these ratings do NOT relate to absolute performance -- they are relative to the EOS requirements.



Ratings Changes:

Upgrades: ↑

UCSB: Adequate → **Good**
Oregon: Low → **Good**

Downgrades: ↓

NCAR: Good → **Adequate**

Testing Stopped:

Brazil (had been Adequate)

Testing (Re)Started:

BU: **Excellent**

EOS QA SCF Sites: Network Requirements vs. Measured Performance

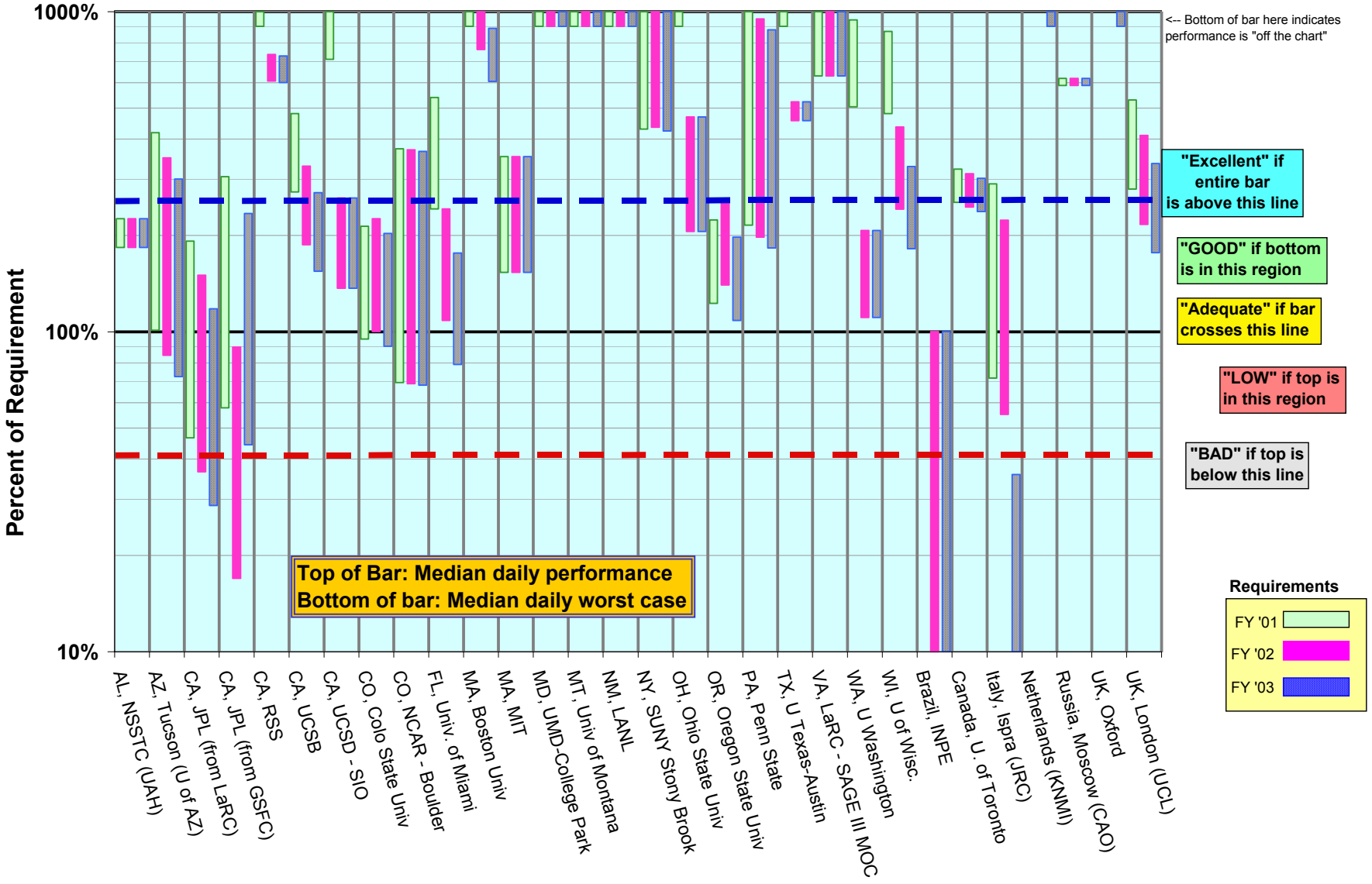
May 2002		Requirements (kbps) (including 50% QA contingency)			Testing							
Destination	Team (s)	Previous: FY '01	Current: FY '02	Future: FY '03	Source Node: Test Period	Median kbps	Median Daily Worst	Current Rating* (FY '02)	Last Month	Future Rating* (FY '03)	Route Tested	Upgrade
AL, NSSTC (UAH)	CERES, AMSR	1809	1809	1809	LaTIS: 01-Apr-02 - 31-May-02	4081	3319	GOOD	G	GOOD	NISN + FDDI	
AZ, Tucson (U of AZ)	MODIS, MISR	2981	3571	4161	LDAAC: 15-Apr-02 - 31-May-02	12484	3014	Adequate	A	Adequate	Abilene via MAX	
CA, JPL (from LaRC)	MISR	8762	11192	14258	LDAAC-MISR-ATM: 01-Feb-02 - 31-May-02	16811	4086	Adequate	A	Adequate	NISN Private VC	Increase VC
CA, JPL (from GSFC)	AIRS, TES, others	5144	17556	6713	GSFC-AIRS: 09-Apr-02 - 31-May-02	15710	2976	LOW	L	Adequate	NISN SIP	Increase VC
CA, RSS	AMSR	200	376	380	JPL PODAAC: 26-Jan-02 - 31-May-02	2763	2282	Excellent	E	Excellent	2 * T1 - Consolidated	
CA, UCSB	MODIS	2453	3583	4336	GSFC MAX: 01-May-02 - 31-May-02	11787	6705	GOOD	A	GOOD	Abilene via NISN-MAX	
CA, UCSD - SIO	ICESAT, CERES	1200	6225	6225	GSFC: 04-Mar-02 - 31-May-02	16286	8522	GOOD	G	GOOD	Abilene via MAX	
CO, Colo State Univ	CERES	1758	1665	1851	LaTIS: 01-Apr-02 - 31-May-02	3755	1669	GOOD	G	Adequate	NISN -> Abilene	
CO, NCAR - Boulder	MOPITT, HIRDLS	4681	4716	4768	LaRC DAAC: 01-May-02 - 31-May-02	17459	3249	Adequate	G	Adequate	NISN -> Abilene	
CO, NOAA / ERL, Boulder	CERES	1709	1708	1711								
FL, Univ. of Miami	MODIS, MISR	4612	10282	14121	GSFC: 01-May-02 - 31-May-02	24883	11163	GOOD	G	Adequate	Abilene via MAX	
IL, UIUC	MISR	1134	1134	1134								
MA, Boston Univ	MODIS, MISR	1207	1967	2474	EDC DAAC: 20-May-02 - 31-May-02	21957	14987	Excellent	N/A	Excellent	Abilene via vBNS+	
MA, MIT	ICESAT	1700	1700	1700	GSFC : 28-Jan-02 - 31-May-02	5994	2606	GOOD	G	GOOD	Abilene via MAX	
MD, UMD-College Park	MODIS	1928	1969	1997	GSFC-MAX: 01-Jan-02 - 31-May-02	150648	123277	Excellent	E	Excellent	Direct Fiber	
MT, Univ of Montana	MODIS	244	459	603	EDC DAAC: 30-Apr-02 - 27-May-02	15254	7828	Excellent	E	Excellent	Abilene via vBNS+	
NM, LANL	MISR	478	616	755	LaRC DAAC: 03-Apr-02 - 31-May-02	12855	6833	Excellent	E	Excellent	ESNet via ARC	
NY, SUNY Stony Brook	CERES	544	536	551	LaTIS: 03-May-02 - 29-May-02	9612	2336	Excellent	E	Excellent	NISN -> vBNS	
OH, Ohio State Univ	ICESAT	400	5425	5425	GSFC: 01-Jan-02 - 31-May-02	25451	11164	GOOD	G	GOOD	Abilene via MAX	
OR, Oregon State Univ	CERES, MODIS	5007	4390	5666	LaTIS: 29-May-02 - 31-May-02	11197	6145	GOOD	L	GOOD	NISN -> Abilene	LaRC Firewall
PA, Penn State	MISR	1947	2121	2295	LaRC DAAC: 15-May-02 - 31-May-02	20137	4191	GOOD	G	GOOD	NISN -> Abilene	
TX, Texas A&M	AMSR	400	400	400								
TX, U Texas-Austin	ICESAT	700	8755	8755	GSFC: 01-Feb-02 - 31-May-02	45803	40004	Excellent	E	Excellent	Abilene via MAX	
VA, LaRC - SAGE III MOC	SAGE III	200	200	200	GSFC-CSAFS: 01-Apr-02 - 31-May-02	3630	1261	Excellent	E	Excellent	Abilene via NISN-MAX	
WA, NOAA PNNL	MISR	400	400	400								
WA, U Washington	ICESAT	2400	10920	10920	GSFC: 10-May-02 - 31-May-02	22642	12101	GOOD	G	GOOD	Abilene via MAX	
WI, U of Wisc.	MODIS, AIRS	4599	9135	12152	GSFC: 29-Apr-02 - 31-May-02	39891	22090	GOOD	G	GOOD	Abilene via MAX	
Brazil, INPE	HSB	0	622	622	No testing since 21-Apr-02			N/A	A	N/A	Abilene -> AMpath-> ANSP	
Canada, U. of Toronto	MOPITT	441	456	471	LARC DAAC: 07-Dec-01 - 31-May-02	1421	1119	GOOD	G	GOOD	NISN T1	NISN-CA*net3
France, Palaiseau	CERES	204	203	204								
Italy, Ispra (JRC)	MISR	237	308	1923	LaRC DAAC: 13-Mar-02 - 31-May-02	688	170	Adequate	A	LOW	NISN-UUNET-Milan	
Netherlands (KNMI)	OMI	0	0	311	GSFC: 01-May-02 - 31-May-02	37283	24280	Excellent	E	Excellent	Abilene --> Chi -> Surfnet	
Russia, Moscow (CAO)	SAGE III	26	26	26	CAO-LaRC-N: 09-Nov-01 - 31-May-02	154	153	Excellent	E	Excellent	NISN -> Moscow	
UK, Oxford	HIRDLS	0	0	311	GSFC: 12-Mar-01 - 31-May-02	4814	3663	Excellent	E	Excellent	Abilene->JAnet (NY)	
UK, London (UCL)	MISR, MODIS	478	616	755	LDAAC-UCL-SCF: 19-Apr-02 - 31-May-02	2531	1334	GOOD	G	GOOD	Abilene->JAnet (NY)	

*Rating Criteria:		Rating	Current Score	Prev. Score	re FY '03 Score	
Excellent	Median of Daily worst hours >= 3 *Requirement	Excellent	11	10	11	
GOOD	Median of Daily worst hours >= Requirement	GOOD	13	12	11	
Adequate	Median of Daily worst hours < Requirement <= Median of Daily Medians	Adequate	4	5	6	
LOW	Requirement > Median of Daily Medians	LOW	1	2	1	
BAD	Requirement > 3 * Median of Daily Medians	BAD	0	0	0	
		Total	29	29	29	

Change History:		
8-Jun-98	Original	
10-Jul-98	Incorporated new MISR QA flows	
10-Sep-98	Added % of requirements columns and associated chart	
28-Oct-99	Added Previous Status Column	
1-Jul-00	Added "Excellent" Status, Ratings Summary Chart	
10-Apr-01	Updated requirements with BAH, added additional sites and missions	
7-Jun-01	Added ICESAT sites and requirements, added contingency to QA and SIPS	
13-Jul-01	Updated requirements for latest # of users	

EOS QA SCF Sites

Daily Median and Worst Performance as a percent of Requirements



Details on individual sites:

Each site listed below is the DESTINATION for all the results reported in that section. The first test listed is the one on which the rating is based -- it is from the source most relevant to the driving requirement. Other tests are also listed. The three values listed are derived from [nominally] 24 tests per day. For each day a daily best, worst, and median is obtained. The values shown below are the medians of those values over the test period.

1) AL, NSSTC (UAH) (aka GHCC)

Rating: Continued **Good**

Teams: CERES, AMSR

Domain: nsstc.uah.edu

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC aTIS	4.3	4.1	3.3	NISN SIP
GSFC	4.8	4.7	2.9	NISN SIP
EDC				

Requirements:

Source Node	FY	mbps	Rating
LaRC LaTIS	'02, '03	1.8	**Good**

Comments: Slight improvement in daily worst from LaTIS, otherwise performance from both LaTIS and GSFC sources very stable.

Testing to NSSTC from EDC for AMSR, also via NISN SIP stopped on 10 Feb, due to EDC host problems. Results had been similar to the other sources; not quite as good on peaks, but the absence local congestion at EDC resulted in better minima than LaTIS when it had the firewall problem. Will try to restart.

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2) AZ, Tucson (U of AZ):

Rating: Continued **Adequate**

Teams: MODIS, MISR

Domain: arizona.edu

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC DAAC	18.5	14.5	1.9	Abilene via NISN / Chicago
EDC	31.0	16.9	9.1	Abilene via vBNS+ / Chicago
GSFC	31.5	25.7	15.1	Abilene via MAX

Requirements:

Source Node	FY	mbps	Rating
LaRC DAAC	'02	3.6	**Adequate**
EDC DAAC	'02	0.7	**Excellent**
LaRC DAAC	'03	4.2	**Adequate**
EDC DAAC	'03	0.8	**Excellent**

Comments: Test host stopped responding on 16 March – restored 15 April with revised configuration at Arizona. Performance from LaRC and GSFC dropped over this transition, most severely in daily worst

value. Previously, from LaRC, median was 20 mbps, daily worst was 11.2 mbps. Perhaps AZ firewall is getting congested at peak times.

Testing stopped from EDC on 10 Feb due to host problems at EDC; restarted 20 May.

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3) CA, JPL:

Rating Continued **Low**

Teams: MISR, AIRS, TES, MLS, ASTER

Domain: jpl.nasa.gov

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC DAAC	17.4	16.8	4.1	NISN PVC
GSFC	21.1	15.7	3.0	NISN SIP
LaRC DAAC	15.4	3.2	0.7	NISN SIP

Requirements:

Source Node	FY	mbps	Rating
LaRC DAAC	'02	11.2	Adequate
LaRC DAAC	'03	14.3	Adequate
GSFC	'02	17.6	Low
GSFC	'03	6.7 (?)	Adequate

Comments:. Requirements were split as shown in Feb. '02 between GSFC and LaRC. Performance from LaRC via NISN private ATM VC between LaRC and MISR was mostly stable – the daily worst improved back to former levels (had dropped last month, probably due to increased congestion). This is rated as "Adequate" against split LaRC requirements.

From GSFC, now testing to the AIRS SCF at JPL, the performance via SIP exhibits high congestion (similar to GSFC-MISR via SIP), with the ratio of daily best to daily worst at about 7:1. This results in a FY'02 rating of "LOW". For FY '03 the AIRS requirement is shown as stopping, with the rating back to "Adequate", but this requirements drop seems unlikely to be accurate.

The proposal by JPL to eliminate the private PVC, and use NISN SIP, appears to have dropped off the radar screen, in part because the NISN SIP service performance from LaRC dropped in March '02 (was 18 mbps in November), and would be rated "BAD".

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4) CA, RSS: (Santa Rosa):

Rating: Continued **Excellent**

Teams: AMSR

Domain: remss.com

Test Results:

Source Node	Medians of daily tests (kbps)			Route
	Best	Median	Worst	
JPL PODAAC	2846	2763	2282	NISN SIP: 2 x T1

Requirements:

Source Node	FY	kbps	Rating
JPL PODAAC	'02	376	Excellent
JPL PODAAC	'03	380	Excellent

Comments: NISN upgraded the router software to allow the 2 T1s to be combined in Jan '02, and performance increased to a median of 2.8 mbps, as expected. The median daily worst is now well above 3 x the requirement, so rates as Excellent.

5) CA, UCSB:

Rating: ↑ Adequate → **Good**

Teams: MODIS

Domain: s2k.ucsb.edu

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-MAX	13.6	11.8	6.7	Abilene via NISN / MAX
EDC				Abilene via vBNS+/Chicago

Requirements:

Source Node	FY	mbps	Rating
GSFC-MODIS	'02	3.6	**Good**
GSFC-MODIS	'03	4.3	**Good**

Comments: Performance mostly stable from GSFC-MAX, using multiple streams beginning 24 May. At that time, daily peaks increased from 13 mbps to only about 16 mbps -- thruput is apparently limited at UCSB. But dips increased to about 12.5 – would rate as Excellent for FY '02. . Testing resumed from GSFC DAAC in late May (performance similar to MAX), and EDC in early June.

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6) CA, UCSD (SIO):

Rating: Continued **Good**

Teams: CERES, ICESAT

Domain: ucsd.edu

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC	23.6	16.3	8.5	VBNS+ via MAX / WOR
LaTIS	21.9	20.8	11.3	Abilene via NISN / Chi

Requirements:

Source Node	FY	mbps	Rating
GSFC	'02, '03	6.2	**Good**
LaTIS	'02, '03	0.25	**Excellent**

Comments: Requirements split in March '02 into ICESAT (GSFC) and CERES (LaTIS), with 2 users (100 kbps / user requirement) allocated to LaTIS, and 12 to GSFC, in proportion to QA/SIPS requirements). Now using Abilene from both LaTIS and GSFC. Performance from GSFC stable; rates as "Good".

From LaTIS, performance is limited by the LaRC firewall's lack of support for extended windows. Started using multiple tcp streams on 29 May to migitate this situation; thruput improved dramatically from last month's median of 5.2 mbps.

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7) CO, Colo State Univ.:

Rating: Continued **Good**

Teams: CERES

Domain: colostate.edu

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaTIS	4.0	3.8	1.669	Abilene via NISN / Chicago
GSFC	4.4	4.3	4.1	Abilene via MAX

Requirements:

Source Node	FY	mbps	Rating
LaTIS	'02	1.665	Good
LaTIS	'03	1.85	Adequate

Comments: Performance from LaTIS stable. The daily worst is barely above the requirement for '02, (but is below the '03 requirement). Performance from GSFC is very steady, would rate as "Good for both years. The thruput limitation (about 4.5 mbps) is the CSU 10M Ethernet LAN.

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8) CO, NCAR:

Rating: ↓ Good → Adequate

Teams:MOPITT

Domain: scd.ucar.edu

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC DAAC	21.1	17.5	3.2	Abilene via NISN / Chicago
GSFC	55,8	32.7	17.6	Abilene via MAX

Requirements:

Source Node	FY	mbps	Rating
LaRC DAAC	'02	4.7	Adequate
LaRC DAAC	'03	4.8	Adequate

Comments: Performance from LaRC DAAC mostly stable since the NISN reconfiguration at LaRC on October 16 -- slight drop appears due to increased congestion, reduces rating to "Adequate". Performance from GSFC stable since March, would be rated "Excellent".

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9) FL, Univ. of Miami:

Rating: Continued Good

Teams: MODIS, MISR

Domain: rsmas.miami.edu

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC	39.8	24.9	11.2	Abilene via MAX
GSFC-MODIS	40.0	19.5	7.4	Abilene via NISN / MAX
LaRC DAAC	12.0	7.2	2.1	Abilene via NISN / Chicago

Requirements:

Source Node	FY	mbps	Rating
GSFC	'02	9.7	Good
GSFC	'03	13.3	Adequate
LaRC DAAC	'02	0.6	Excellent
LaRC DAAC	'03	0.8	Good

Comments: Requirements split between LaRC (MISR) and GSFC (MODIS) in March. Performance from all sources continues short term variable, but long term stable; slight drop this month reduces FY'03 rating. Performance from MODIS at GSFC is lower due to IONet and firewall; would score as Adequate for FY'02 and '03. Testing from LDAAC added in Feb '02, performance via NISN to Abilene is lower but well above the MISR requirements.

10) MA, Boston Univ:

Rating: N/A → **Excellent**

Teams: MODIS, MISR

Domain: bu.edu

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
EDC DAAC	29.2	22.0	15.0	Abilene via vBNS+ / Chicago
GSFC	91.5	79.6	31.3	Abilene via MAX
LaRC DAAC	21.1	16.2	3.5	Abilene via NISN / Chicago

Requirements:

Source Node	FY	mbps	Rating
EDC DAAC	'02	2.0	**Excellent**
EDC DAAC	'03	2.5	**Excellent**

Comments: Testing from EDC resumed in May – had stopped in Feb due to EDC host problems. Performance very stable from all sites via Abilene. Would also be rated excellent from GSFC. Testing from LDAAC started late Feb, looks typical, no MISR QA flow requirements listed.

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11) MA, MIT:

Rating: Continued **Good**

Teams: ICESAT

Domain: mit.edu

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC	6.4	6.0	2.6	Abilene via MAX

Requirements:

Source Node	FY	mbps	Rating
GSFC	'02, '03	1.7	**Good**

Comments: Performance via Abilene has been very stable since testing began in January 2002 .. The thruput limit is a 10M Ethernet at MIT.

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12) MD, Univ. of Maryland:

Rating: Continued **Excellent**

Teams: MODIS

Domain: umd.edu

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-MAX	155.8	150.6	123.3	Direct Fiber OC-12 / MAX / SCF
GSFC-MODIS	14.4	9.7	1.7	NISN / MAX / UMIACS
EDC	33.5	20.2	11.5	VBNS+ / Chi / Abilene / MAX / SCF
NSIDC	37.1	17.2	6.5	Abilene / MAX / SCF

Requirements (QA only):

Source Node	FY	mbps	Rating
GSFC DAAC	'02	1.9	**Excellent**
GSFC DAAC	'03	2.5	**Excellent**

Comments: Steady performance from GSFC-MAX. Reconfiguration at UMD in November 2001 removed the OC-3 ATM interface, now upgraded to GigE. Problems at UMD reduce performance to UMIACS test node. Testing from EDC resumed in May; had stopped Feb10, due to host problems at EDC. Performance from NSIDC remained stable after improvement on Feb 28.

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13) MT, Univ of Montana:

Rating: Continued **Excellent**
Teams: MODIS
Domain: ntsg.umt.edu

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
EDC DAAC	16.4	15.3	7.8	VBNS+ / Chi / Abilene
GSFC	34.7	32.2	29.1	MAX / Abilene
NSIDC	37.5	35.0	20.8	Abilene

Requirements:

Source Node	FY	kbps	Rating
EDC DAAC	'02	459	**Excellent**
EDC DAAC	'03	603	**Excellent**

Comments: Testing from EDC restarted 30 April; had stopped Feb10, due to host problems at EDC. GSFC 3 May and NSIDC 10 May – aggregate performance increased from window limited 8 mbps (from GSFC) and 17 mbps from NSIDC. Began using multiple TCP streams from EDC at the end of May – aggregate performance is MUCH higher. Will have to invent a new category: "Excellent+"

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14) NM, LANL:

Rating: Continued **Excellent**
Teams: MISR
Domain: lanl.gov

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC DAAC	16.9	12.9	6.8	NISN SIP / MAE-W (Ames) / ESnet
GSFC	19.3	1y.6	10.6	MAX / ESnet

Requirements:

Source Node	FY	kbps	Rating
LaRC DAAC	'02	616	**Excellent**
LaRC DAAC	'03	755	**Excellent**

Comments: On April 2, a reconfiguration at LANL improved performance dramatically from both hosts (was 2.3 mbps typ from LDAAC and 3.2 from GSFC), upgrading the rating to "Excellent".

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15) NY, SUNY-SB:

Rating: Continued **Excellent**
Teams: CERES, MODIS
Domain: sunysb.edu

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaTIS	10.3	9.6	2.3	NISN SIP / Chi / Abilene / NYSernet
GSFC	34.1	28.9	24.9	MAX / Abilene / NYSernet

Requirements:

Source Node	FY	kbps	Rating
LaTIS	'02	536	**Excellent**
LaTIS	'03	551	**Excellent**

Comments: Another route change from LaTIS on 3 May, and again on 30 May (via NISN-Chi-Abilene). Performance for most of May from both sites had lower peaks but higher dips than April, so the margin is improved. The latest route looks even better.

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16) OH, Ohio State Univ:

Rating: Continued **Good**

Teams: ICESAT

Domain: ohio-state.edu

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC	39.8	25.5	11.1	Abilene via MAX

Requirements:

Source Node	FY	mbps	Rating
GSFC	'02, '03	5.4	**Good**

Comments: Performance dropped from 28 mbps to under 1 mbps on May 6 due to reconfiguration problems at Ohio State; recovered May 28 – previously had been steady since 22-Nov-01. Not sure how to rate this, but since the problem wasn't in the WAN, and it's been fixed already, the data above is the average since the beginning of the year.

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17) OR, Oregon State Univ:

Rating: ↑ Low → **Good**

Teams: CERES, MODIS

Domain: oce.orst.edu

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaTIS	14.4	11.2	6.1	Abilene via NISN / Chicago
JPL	27.4	24.9	19.2	CalREN / Abilene
GSFC	23.2	16.3	6.1	Abilene via MAX

Requirements:

Source Node	FY	mbps	Rating
LaTIS	'02	4.4	**Good**
LaTIS	'03	5.7	**Good**
GDAAC	'02, '03	0.12	**Excellent**

Comments: LaRC firewall reconfiguration on 6 March reduced the daily congestion cycle, but the firewall does not support large TCP window size, so thruput from LaTIS is limited to about 3 mbps on a single stream. Began using multiple TCP streams; aggregate performance much improved! Performance from JPL and GSFC steady.

18) PA: Penn State Univ

Rating: Continued **Good**

Teams:MISR

Domain: psu.edu

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC DAAC	21.4	20.1	4.2	Abilene via NISN / Chicago
GSFC	58.9	57.6	49.6	Abilene via MAX

Requirements:

Source Node	FY	mbps	Rating
LaRC DAAC	'02	2.1	**Good**
LaRC DAAC	'03	2.3	**Good**

Comments: Performance from both GSFC and LDAAC improved on May 15, quite a bit from GSFC. (LDAAC median was 9.4 mbps last month, GSFC was 12.0)

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19) TX: Univ. Texas - Austin

Rating: Continued **Excellent**

Teams: ICESAT

Domain: utexas.edu

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC	47.6	45.8	40.0	Abilene via MAX

Requirements:

Source Node	FY	mbps	Rating
GSFC	'02, '03	8.8	**Excellent**

Comments: Performance from GSFC via Abilene remains very stable

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20) VA, LaRC - SAGE III MOC:

Rating: Continued **Excellent**

Teams: SAGE III

Domain: larc.nasa.gov

Test Results:

Source Node	Medians of daily tests (kbps)			Route
	Best	Median	Worst	
GSFC-SAFS	4185	3630	1261	NISN SIP

Requirements:

Source Node	FY	kbps	Rating
GSFC SAFS	'02, '03	200	**Excellent**

Comments: LaRC firewall upgrade in March removed the former daily cycle.

21) WA, Univ Washington: Rating: Continued Good

Teams: ICESAT Domain: washington.edu

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC	35.0	22.6	12.1	Abilene via MAX

Requirements:

Source Node	FY	mbps	Rating
GSFC	'02, '03	10.9	Good

Comments: Performance dropped somewhat on May 10 (median was 30.8 mbps previously). Still rates as "Good".

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22) Univ. of Wisconsin: Rating: Continued Good

Teams: MODIS Domain: ssec.wisc.edu

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-MAX	67.9	39.9	22.1	MAX / Abilene / Chi / MREN
GSFC-MODIS	15.9	14.1	7.0	NISN / Chicago / MREN
GSFC-NISN	16.4	13.9	4.0	NISN / Chicago / MREN

Requirements:

Source Node	FY	mbps	Rating
GSFC	'02	9.1	Good
GSFC	'03	12.2	Good

Comments: Thruput improved again in May from GSFC-MAX via Abilene (was 39 / 26 / 9.5 mbps last month). FY '03 rating improved from "Adequate" to "Good". Performance via NISN dropped from both MTVS1 and GSFC-NISN on 25 May. Reconfiguration planned at GSFC will allow MODIS to use Abilene rather than NISN.

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23) Brazil, INPE: Rating: Adequate → N/A

Team: HSB Domain: inpe.br

Test Results:

Source Node	Medians of daily tests (kbps)			Route
	Best	Median	Worst	
GSFC				MAX / Abilene / AMPath / ANSP

Requirements: (2 ISTs only)

Source Node	FY	kbps	Rating
GSFC EOC	'02, '03	622	N/A

Comments: Testing stopped April 21, due to the installation of a firewall at INPE—will try to restart. Performance had been 1.1 mbps median, rated as "Adequate".

24) CA, Univ of Toronto: Rating: Continued Good

Team: MOPITT Domain: physics.utoronto.ca

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC DAAC	1.43	1.42	1.12	NISN / GSFC / T1
LaRC DAAC	17.4	15.8	5.0	NISN / Chicago / CA*net3
GSFC	1.43	1.42	1.06	NISN / T1
GSFC	23.6	21.5	14.9	MAX / Abilene / Chicago / CA*net3

Requirements:

Source Node	FY	kbps	Rating
LaRC DAAC	'02, '03	160	Excellent
GSFC EOC	'02, '03	311	Excellent
Combined	'02, '03	471	Good

Comments: Performance from both LDAAC (Source of QA data) and GSFC (Source for IST) via NISN dedicated T1 very steady. Rating from either alone would be "Excellent", but since both flow together on the T1, the combined requirement rates as "Good".

Performance from both LaRC and GSFC via Chicago / CA*net3 / ONet is MUCH better than the NISN dedicated circuit -- would be rated "Excellent".

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25) IT, EC - JRC: Rating: Continued Adequate

Teams: MISR Domain: ceo.sai.jrc.it

Test Results:

Source Node	Medians of daily tests (kbps)			Route
	Best	Median	Worst	
LaRC DAAC	812	688	170	NISN / UUnet / Milan

Requirements:

Source Node	FY	kbps	Rating
LaRC DAAC	'02	308	Adequate
LaRC DAAC	'03	1923	Low

Comments: Performance has been stable, with no daily congestion cycle observed after testing resumed March 13. It is unlikely that the FY'03 requirement can be met without additional resources.

26) Netherlands, KNMI:

Rating: Continued **Excellent**

Teams: OMI

Domain: nadc.nl

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC	38.4	37.3	24.3	MAX / Abilene/ Chi / Surfnet

Requirements:

Source Node	FY	Mbps	Rating
GSFC	'03	0.311	**Excellent**

Comments: Performance very stable; less variance than last month. This is exceptionally good performance for US to Europe! Next month will try multiple TCP streams to improve thruput.

Note: Requirement stated above at 311 kbps is for IST only.

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27) RU, CAO (Moscow):

Rating: Continued **Excellent**

Teams: SAGE III

Domain: mipt.ru

Test Results:

Source → Dest	Medians of daily tests (kbps)			Route
	Best	Median	Worst	
CAO → LaRC	156	154	153	MIPT / TCnet / NISN SIP
CAO → LaRC	1132	1058	614	Commodity Internet
LaRC → CAO	158	139	121	NISN SIP / TCnet / MIPT
LaRC → CAO	1340	1141	562	Commodity Internet

Requirements:

Source → Dest	FY	kbps	Rating
CAO → LaRC	'02	26	**Excellent**
LaRC → CAO	'02	26	**Excellent**

Comments: Performance testing running since 1 November, with dual routes. Performance on NISN dedicated circuit to Moscow, then TCnet (NASA Russian ISP) tunnel to CAO ISP (MIPT) is extremely steady in both directions. The dual route configuration also allows testing via the commodity internet route; performance via that route is better but more variable, also would rate Excellent.

28) UK, London: (UCL SCF)

Rating: Continued **Good**

Teams: MODIS, MISR

Domain: ucl.ac.uk

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC DAAC	3.0	2.5	1.3	MAX / Abilene / NY / JAnet
GSFC DAAC	4.0	3.8	3.3	MAX / Abilene / NY / JAnet

Requirements

Source Node	FY	kbps	Rating
LaRC DAAC	'02	616	**Good**
LaRC DAAC	'03	755	**Good**

Comments: Performance has been very stable since April '01 from L-DAAC. Two modes seem to exist from GSFC: either about 6 mbps, or about 3.5 mbps.

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29) UK, Oxford:

Rating: Continued **Excellent**

Teams: HIRDLS

Domain: ox.ac.uk

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC	5.3	4.8	3.7	MAX / Abilene / NY / JAnet

Requirements: HIRDLS IST only

Source Node	FY	kbps	Rating
GSFC EOC	'03	311	**Excellent**

Comments:. Very steady performance continues.

Results to other EOS HIRDLS UK Sites: (Requirements still TBD)

Source → Dest	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC → RAL	16.9	13.1	6.5	MAX / Abilene / NY / JAnet

Comments: Thruput to RAL varies a bit, but remains excellent.